

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *The Entrance of the Spermatozoon into the Ovary.* By M. KEBER.—By the diligence of embryologists, the science of development continues to make wonderful advances. Martin Barry and Nelson had already published observations of the entrance of the spermatozoon into the ovulum; but their observations were not regarded as completely satisfactory, till Keber, following in their footsteps, by a careful observation of the process as it takes place in the fresh water mussel, made out and described the different stages of this wonderful function. Since Keber's work appeared, M. Bischoff has been twice in the press; first of all, with a pamphlet controverting the views of Keber, and then with one fully confirming the same views. Bischoff also takes occasion to make some amends to Martin Barry, whose uncommon accuracy and profound research he has occasionally failed to recognize, till forced by overpowering evidence.

In the fresh water mussel (*unio*), at the time of conception, the ovulum, although still small, projects at one part a minute process which springs from the membrane of the albumen, and perforates the cortical membrane. This process dehisces, lets escape a little albumen, and admits one of the spermatozoa which surround it. This done, the micropyle, as it is called, again closes by constriction or obliteration.

Afterwards (and sometimes earlier) there is formed near the micropyle an adhesion between the membranes of the albumen and of the yolk, then the yolk-bag dehisces, receives the spermatozoon into its interior, and again is closed.

The spermatozoon afterwards sinks deep into the yolk, swells and becomes rounded; after some time a nucleus appears in it, while its outer membrane thins and at length disappears.

The nucleus of the spermatozoon splits up into several irregular divisions which at first lie near one another, and then become diffused through the yolk, so that before the dissolution of the germinal vesicle the yolk is filled with particles derived from the male.

M. Keber has also confirmed the observations of Barry in regard to the small pellucid vesicles not rarely found in the abdominal cavity of the rabbit, attached to the ovary, the fimbriæ, the oviduct, the peritoneum, or the uterus itself; within which are observed vibratory motions over the whole surface, and rotatory movements of various corpuscles, and of a large mulberry-like body on its axis, which increases under the eye of the observer by the apposition to it of roundish corpuscles from the fluid of the vesicle.

Barry observed a similar vesicle imbedded in the mucous membrane of the

uterus. Those found in this situation are smaller than those of the abdominal cavity. In these bodies, Keber has observed changes resembling the formation of the micropyle in the ovulum, and for that and other reasons regards these vesicles as ova. But for further discussion of this subject we refer the reader to Keber's monograph.—*Edinburgh Med. and Surg. Journ.*, October, 1854.

2. *Histology of the Retina.*—The observations of GEGENBAUR, KÖLLIKER, LEYDIG, II. MÜLLER, and VIRCHOW, on the body of a beheaded criminal, though chiefly of value in a physiological aspect, throw light on some hitherto obscure points in normal histology.

In some investigations on the retina, it was found that, in the neighbourhood of the yellow spot, the cones are smaller, but of greater length, and closely pressed together, while, external to it, the rods become interposed. The cones, in this situation, were scarcely pyriform, had a pretty uniform thickness of $0.002'''$, had no point, and were from $0.012'''$ — $0.014'''$ in length. At the periphery of the retina, these little bodies were thicker, assumed rapidly a more pyriform or oval shape; so that, with a length of $0.008'''$, their greatest breadth was $0.003'''$ — $0.004'''$. Their somewhat conical points, which, in the peripheral parts, were marked off by a transverse line, had a length of about $0.006'''$; the isolated rods were about $0.0008'''$ — $0.0009'''$ in breadth, and $0.012'''$ — $0.014'''$ long. It was also observed, by careful focalizing, that the points of the cones lay somewhat deeper than the extremities of the rods. Vertical sections through the yellow spot showed a remarkable thinness in this situation; the yellow diffused colour had its seat in the middle layers; but little, if at all, in the inner cell and outer rod-layers.

BERGMANN, of Rostock, had an opportunity of investigating the structures of the eye in the case of a beheaded criminal, six hours after death. His views differ somewhat from those of Kölliker.

Half of one retina was examined fresh; the section had been made through the middle of the yellow spot, behind which only small cones were found, some with numerous rows of rods between them; but this part of the investigation appears to have been very incomplete, owing to the structures breaking up into fragments, the localities of which could not be determined.

The second eye was prepared and hardened before section, and consequently the retina exhibited no folds; but there were some differences of level, owing to the difference of thickness in different parts, while, probably, a great part resulted from the action of the chromic acid. The small angular fovea centralis lay very sharply defined in the middle of a somewhat pyriform field, the point of which was turned towards the colliculus of the optic nerve. This space was bounded on its upper and under sides by delicate borders, which did not reach completely to the point; but there intervened between them here a middle elevation, the plica centralis of former observers. The borders inclined towards each other, but did not touch. Bergmann proposes to call this little field the Area centralis retinæ. In this area the nervous layer becomes suddenly very thin. Some sections from the optic nerve to the fovea showed well the particular disposition of the nervous matter in this situation; the layer of ganglionic bodies was found not to be continued over the base of this depression, while both the granular layers, with the intergranular layer, though very thin, were continuous throughout. Bergmann uses this as an argument against the opinion, that the ganglionic bodies constitute the perceptive part of the retina. Kölliker, Hannover, and others, consider the fovea as a physiologically imperfect part. Bergmann describes a peculiar arrangement of the fibres in the neighbourhood of the fovea, by which those coming from the outer granular layer take an oblique course, and finally pass into the inner layer. This observer claims for this portion of the retina a higher physiological importance than is accorded to it by others.—*Brit. and For. Med.-Chirurg. Rev.* April, 1855, from *Henle and Pfeuffer's Zeitschrift*, Bd. v.

3. *Composition and Action of the Gastric Juice.*—Notwithstanding the numerous investigations to which the gastric juice has already been subjected, the observations made by Drs. O. DE GRUNEWALD and DE SCHROEDER on a woman